

UTILITY PATENT APPLICATION TRANSMITTAL (Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.

P-4728

Total Pages in this Submission

23

TO THE ASSISTANT COMMISSIONER FOR PATENTS

Box Patent Application
Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

PROCESS AND COMPOSITION FOR PRODUCING ARTICLES FROM RICE HULLS

and invented by:

AMONOLLAH YEKANI

If a **CONTINUATION APPLICATION**, check appropriate box and supply the requisite information:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Which is a:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Which is a:

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Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 13 pages and including the following:
 - a. ☒ Descriptive Title of the Invention
 - b. ☒ Cross References to Related Applications (if applicable)
 - c. ☐ Statement Regarding Federally-sponsored Research/Development (if applicable)
 - d. ☐ Reference to Microfiche Appendix (if applicable)
 - e. ☒ Background of the Invention
 - f. ☒ Brief Summary of the Invention
 - g. ☒ Brief Description of the Drawings (if drawings filed)
 - h. ☒ Detailed Description
 - i. ☒ Claim(s) as Classified Below
 - j. ☒ Abstract of the Disclosure

1c678 U.S. PTO
09/394251

09/13/99

1c543 U.S. PTO
09/13/99

**UTILITY PATENT APPLICATION TRANSMITTAL
(Small Entity)**

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Application Elements (Continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*
a. ☐ Formal b. ☒ Informal Number of Sheets 1
4. ☒ Oath or Declaration
a. ☒ Newly executed *(original or copy)* ☐ Unexecuted
b. ☐ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*
c. ☒ With Power of Attorney ☐ Without Power of Attorney
d. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application,
see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference *(usable if Box 4b is checked)*
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied
under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby
incorporated by reference therein.
6. ☐ Computer Program in Microfiche
7. ☐ Genetic Sequence Submission *(if applicable, all must be included)*
a. ☐ Paper Copy
b. ☐ Computer Readable Copy
c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☐ Assignment Papers *(cover sheet & documents)*
9. ☐ 37 CFR 3.73(b) Statement *(when there is an assignee)*
10. ☐ English Translation Document *(if applicable)*
11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Acknowledgment postcard
14. ☒ Certificate of Mailing
☒ First Class ☐ Express Mail *(Specify Label No.):* _____

UTILITY PATENT APPLICATION TRANSMITTAL
(Small Entity)

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Docket No.
P-4728

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Accompanying Application Parts (Continued)

15. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. ☒ Small Entity Statement(s) - Specify Number of Statements Submitted: 1
17. ☐ Additional Enclosures (please identify below):

Fee Calculation and Transmittal

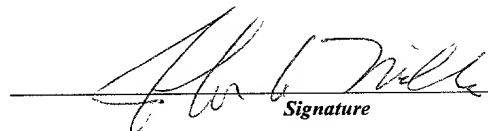
CLAIMS AS FILED

For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	22	- 20 =	2	x \$9.00	\$18.00
Indep. Claims	3	- 3 =	0	x \$39.00	\$0.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
BASIC FEE					\$380.00
OTHER FEE (specify purpose)					\$0.00
TOTAL FILING FEE					\$398.00

- ☒ A check in the amount of **\$398.00** to cover the filing fee is enclosed.
- ☐ The Commissioner is hereby authorized to charge and credit Deposit Account No. _____ as described below. A duplicate copy of this sheet is enclosed.
- ☐ Charge the amount of _____ as filing fee.
- ☐ Credit any overpayment.
- ☐ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

Dated:

9/10/99


Signature

CC:

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9(f) AND 1.27 (b)) - INDEPENDENT INVENTOR**

Docket No.
P-4728

Serial No.

Filing Date

Patent No.

Issue Date

Applicant/ **Amonollah Yekani**
Patentee:

Invention: **PROCESS AND COMPOSITION FOR PRODUCING ARTICLES FROM RICE HULLS**

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled above and described in:

- ☒ the specification to be filed herewith.
☐ the application identified above.
☐ the patent identified above.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ No such person, concern or organization exists.
☐ Each such person, concern or organization is listed below.

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities (37 CFR 1.27)

FULL NAME

ADDRESS

☐

Individual

☐

Small Business Concern

☐

Nonprofit Organization

FULL NAME

ADDRESS

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Individual

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Small Business Concern

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Nonprofit Organization

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Nonprofit Organization

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Small Business Concern

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Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF INVENTOR Amonollah Yekani

SIGNATURE OF INVENTOR 

DATE: 11.11.99

NAME OF INVENTOR _____

SIGNATURE OF INVENTOR _____

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NAME OF INVENTOR _____

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DATE: _____

UNITED STATES APPLICATION

FOR

GRANT OF LETTERS PATENT

BY

AMONOLLAH YEKANI

FOR

**PROCESS AND COMPOSITION FOR PRODUCING
ARTICLES FROM RICE HULLS**

**Law Offices
Mills Law Firm PLLC
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853 Business Park
Post Office Box 587
Wake Forest, North Carolina 27588-0587**

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BACKGROUND OF THE INVENTION

The present invention relates to processes and compositions using rice hull in the manufacture of thermoplastic compositions for the production of articles having increased heat, water, fungal, and insect resistance. This product, the new thermoplastic composition is called "Hodapen pulp". However, for the convenience of disclosing the material in this invention, the terms Hodapen and thermoplastics composition are used interchangeably.

Rice is one of the most abundant grains and plays an important dietary role throughout the world. According to the Food and Agricultural organization of the United States, annual rice production was estimated to be in excess of 40,000,000 metric tons. A major derivative of rice production is the rice hull. The rice hull is a fibrous, non-digestible commodity, representing about 20 percent by weight of the harvested rice paddy. Typically, the dried rice paddy yields by weight, 52% white rice, 20% hull, 15% stalk, 10% bran. Generally, about 3% is lost in conversion. Rice hull resulting from such production generates a substantial disposal problem.

Rice hull has a striated configuration. The outer surface is composed of dentate rectangular elements having high silica content covered with thick cubicle and surface hair. The inner surface is composed of elongated hypodermal fibers substantially devoid of silica. The mid-region is transitional contains little silica. Overall, the rice hull is composed of silica, carbohydrates, proteins, fats and other minor organic constituents.

Rice hull is highly abrasive, poor in nutritive value, and low in bulk density. Accordingly, a few viable economic applications for this byproduct have been developed notwithstanding a widespread environmental desire to eliminate the customary disposal through burning and landfill. Burning, in particular, presents significant problems. Rice hull does not readily combust unless burned in highly controlled equipment that allows continuous removal of ash. Such equipment is costly and not widely available to the growers throughout the world. Particularly, when burning is conducted unattended in the

fields, the long lasting, inefficient combustion presents fire hazards. The burning process also generates considerable smoke and airborne pollutants. The low bulk density of rice hull makes transportation to off-site burning facilities expensive, and the low fuel value of the rice hull is not commercially attractive. The low in bulk density also makes landfill disposal expensive.

To overcome these environmental and disposal problems, substantial effort has been undertaken to find new markets for the rice hull product. However, because of the aforementioned abrasiveness of the hull, lack of nutritive value, low bulk density, utilization has been limited to low value applications, such as bedding, litter, animal roughage and absorbents. While bedding and litter once were beneficial uses for the rice hull, particularly in poultry operations, other manufacturing byproducts such as wood shavings have reduced its demand. Litter usage is also adversely affected by remaining rice residue in the hull and its particulate aspiration and attractiveness to organisms, parasites, fungi, and the like. Numerous efforts have been made to use rice hull as feed for economic animals. Limited success has been achieved in this area due to the low digestibility and low nutritive value of the hull.

Efforts have also been made to utilize rice hull in other areas of the industry. For instance, the hull has been used as oil absorbent and its ash has been used in the cement industry, but there has been limited success due to its cost effectiveness applications.

As a result, a need has continued to exist for value added environmentally acceptable uses of rice hull in foregoing the customary burning and landfill disposal alternatives.

Finally, the present invention not only has overcome the inherent difficulties of utilizing rice hull for applications beyond the low value approaches, it has also incorporated plastic wastes and scraps, an environmental problem, into a composition to produce articles with excellent strength, properties, and final finish.

Due to lignocellulosic content of rice hull, it has lead to it being capable of being lumped with other like materials including grains, fibers, wood flakes and other similar cellulosic byproducts for possible combinations with other recycled materials for variety of applications. For instance, Nagich 5,480,602 suggests that rice hull together with plastics be used for extrusion of particleboard. Bistak et al. 4,747,688 suggests the use of rice hull as a cellulosic particulate component with plastic scrap to make thermoplastic molding compositions.

Montegi et al. 4,783,493 suggest the use of rice hull blended with thermoplastic resins for molding compositions. Moteki et al. 4,761,451 suggest rice hull as filler for the manufacture of acoustics vibration sheet. Parade et al. 5,002,713 and Maki et al. 4,882,112 suggests the use of rice hull in a moldable thermoplastic resin for use as flake board of particleboard panels and other shaped articles.

In the foregoing proposals, prime focus has been on cellulosic materials other than rice hull, notwithstanding peripheral mention of the possible use, few specific disclosures have been made for rice hulls usage in view of its many adverse properties that detract from its ability to simply replace other lignocellulosic materials. On the other hand, this invention exclusively deals with rice hull and not any other lignocellulosic materials. Moreover, although particleboard could be numerated as one of Hodapen's final products, the object of the invention is not to produce particleboard. In this invention the rice hull must undergo a chemical treatment process to adapt to the composition.

SUMMARY OF THE INVENTION

The present invention overcomes the inherent difficulties in utilizing rice hull for applications beyond the low value approaches. One of the foremost problems, are the hull constituencies. The various chemically differing layers of rice hull makes its incorporation into articles difficult. Used as whole or partially particulated, the rice hull does not readily bind or mix with other materials. Even ground rice hull shows little affinity for incorporation into compositions suitable for forming through extrusion or molding.

The present invention overcomes these deficiencies by providing for the pre-treating of the rice hull prior to incorporation into a thermoplastic molding composition, Hodapen, which in addition to the beneficial use of normally burned or buried rice hull may also utilize waste or recycled plastic scrap.

The resulting composition may be extruded, design or bulk molded into a variety of articles having improved abrasion, temperature, moisture, rot, and insect resistance. Moreover, such articles have excellent strength and surface finish properties.

An object of the present invention is to provide a thermoplastic molding composition based on pretreated rice hull with desirable strength, resistance and properties.

Another object of the invention is to provide a process for using rice hull in making products by reducing burning and landfill disposals.

a further object of the present invention is to provide a process by which rice hull is pretreated to permit incorporation with waste and recycled plastic scrap to form a moldable composition.

Moreover, yet another object of the present invention is to use the inherent properties of rice hull to provide articles having improved water, fire, and fungal resistance.

The above and other objectives and advantages of the present invention will become apparent upon reading the following description of the preferred embodiments taken in conjunction with the accompanying drawing.

BRIEF DESCRIPTION OF DRAWING

Figure 1 is a schematic illustrating the process of conversion of rice hull into finished article.

DETAILED DESCRIPTION OF INVENTION

The present invention provides a thermoplastic molding composition comprising: rice hull particulates pre-treated with an effective amount of Sodium Peroxide in the amount of 12 to 18% by weight; a thermoplastic resin in the amount of 3 to 7% by weight; a thermoplastic material in the amount of 25 to 40% by weight.

The thermoplastic molding composition is formed by comprising the steps of: using whole or ground rice hull of desired particulates; admixing said rice hull particulates with Sodium Peroxide; washing said rice hull particulates to remove said Sodium Peroxide to a predetermined level and provide pretreated rice hull particulates containing Sodium Peroxide; drying said pretreated rice hull particulates; and mixing said pretreated rice hull particulates with a thermoplastic resin and a thermoplastic material to form a homogeneous mixture.

More particularly, rice hull obtained as a waste produce from processing operations is initially roughly ground. Typically, the rice hull has a 2 to 5% rice flour residue that can be obtained and marketed from this step in the conversion. The rice hull is then finely ground into particulates or powder of a size suitable for the intended application, typically 25 mesh or less. The powder is then transferred to a holding reservoir and mixed with a treating agent such as Sodium Peroxide in the amount of 12 to 18% by weight of rice hull. The mixture is then held for a period of at least 48 hours.

without such treatment, the experiment has shown that the rice hull would not readily mix with the binder and the added solvent or scrap plastic.

Suitable resins include ethylene, propylene, and the like including mixtures, copolymers, and monomers copolymerizable therewith. Typical plastic used in the present process includes polyethylene, polypropylene, acrylics, polystyrenes, polycarbonates, phenolics, polyesters and the like. The plastics are preferably plastic scraps or waste products, however new material may be used. Waste or scrap plastics are suitably preprocessed for incorporation into the mixer. Up to about 40 percent plastic may be used in the composition with resin in the amount of 2 to 5% by weight of the plastic. Additives and fillers, preferably rice hull ash may be added depending on the end use of the composition. The mixture is then mixed, blended or tumbled to produce a homogeneous mixture.

The resultant composition may be bulk packaged or extruded depending on what method of pulp production is being applied. The composition may be shaped by conventional techniques into a variety of articles having enhanced strength and environmentally improved properties such as water, fire, fungal, and termite resistance.

Moreover, Sodium Peroxide reacts with the minimal remaining rice flower and generates a lubricity in the treated hull, which is beneficial in the relocation and extrusion process of the mixture. After the holding period, the mixture is washed for removal of Sodium Peroxide. While most of the Sodium Peroxide is removed through washing process, about 1 to 7% will remain in the final hull before it is introduced into the next step, the drying process. The washed substance is then transferred to a drying apparatus for drying.

The production of Hodapen pulp depending on the type of hull particulates, fine or coarse and the temperature setting of the manufacturing environment is categorized as follows:

1. Pulp with fine hull particulates at cold operation environment

2. Pulp with fine hull particulates at hot operation environment
3. Pulp with coarse hull particulates at cold operation environment
4. Pulp with coarse hull particulates at hot operation environment

All four categories include a common preparation process comprising the steps of: grinding, treating, and a drying process. At first the rice hull is ground to desired particulate size, then it is led into a treating container in which it is sprinkled with Sodium Peroxide. Later the treated material is left to rest for about 48 hours. Then it is washed with water and led into a drying apparatus. The drying process does not remove the entire Sodium Peroxide and water content of the treated material. After drying the hull is led into a mixer. Other compositions are added to the mixer. The mixture is then blended, mixed, and tumbled for a homogeneous mixture.

The pulps produced in cold environment settings do have the packaging and extrusion capability for desired final article. The pulps produced in the hot environment setting could only be extruded for final products. The composition may be shaped by conventional techniques into a variety of articles having enhanced strength and environmental resistance properties.

The compositions according to the present invention may be formulated according to known techniques in the art for filled thermoplastic compositions. After charging into a suitable apparatus such as a Prodex or Henschel mixer, ribbon blender or tumbler, the components are mixed to form a substantially homogeneous mixture. While the components need not necessarily be added in any particular order, it is preferred to initially add the resin to the treated rice hull mixing until incorporated, thereafter, adding the plastic scrap followed by the filler and additives.

The resulting composition may be extruded into panels or bulk packaged for conventional moldings into the final articles. The thermoplastic molding composition may also be formed under higher temperature conditions wherein the plastic material is initially melted and added to the pretreated rice hull particulates without the resin. In such

a process the resultant composition is thoroughly mixed and directly extruded into a mold die, press or like apparatus.

Such a thermoplastic composition does not have any packaging capability for deferred use.

The resultant composition may be used for a variety of extruded, design or bulk molded into: furniture articles, indoor and outdoor articles; construction products, and automobile products. In the furniture industry, the composition may be used for making chairs, tables, desks, shelves, and like articles benefiting from the water, fire, pest and fungal resistance properties. The same may also be used for decorative furniture such as statues, picture frames, pianos and like products.

In the construction industry, the composition may be used for sidings, interior moldings, millwork and trims. Additionally, countertops, file cabinets, bookshelves, stairways and moldings. Moreover, molded panels may be used in the structure of mobile homes and other modular construction. The aforementioned properties may also be realized as forms and like barriers in construction.

In the automotive industry, the composition may be used in substitution for fiberglass, both exterior and interior, as well as dashboard components and interior trim. The water resistance may also be employed in marine applications including boats and canoes. park and recreational centers can use the material for benches, shelters and structures requiring water and rain resistance as well as environmental and pest resistance.

Such articles may be handles, worked and joined in the manner as like materials through nailing, mechanical fastening, gluing, cutting, and contour forming.

The present invention provides a moldable and extrudable thermoplastic composition consisting of a mixture of rice hull in the form of finely ground rice hull pretreated with, waste or scrap plastic, a polymer resin, a rice hull as a filler.

The rice hull, a waste product of rice harvesting, may be obtained from substantially all varieties of rice harvested for consumption throughout the world. Such rice hull is readily available inasmuch as the current primary utilization is disposal through burning or landfill.

The plastic material used herein is preferably waste or scrap material. While the former is preferred for environmental and economic considerations, new materials may be used. Typical plastics useable herein include polypropylene, polyethylene, polystyrene, polyesters, polycarbonates, phenolics, or other extrudable plastics.

The binder resin used herein is preferably selected from the polylefins described above.

The preferred filler used herein is rice hull ash, which may be readily obtained through controlled combustion of the rice hull.

Further additives may be utilized for desired properties. Examples of such additives include antioxidants, heat stabilizer, UV absorbers, anti-static agents, lubricants, plasticizers, pigments, dispersing agents, lubricants and the like.

It will thus be apparent that the present invention provides unique advantages in utilizing waste rice hull as a key component in achieving the foregoing water, fire and pest resistance properties while providing outstanding strength and surface finish. The compositions effectively and beneficially utilized, for economically valuable application, waste materials normally discarded in environmentally counter productive ways.

Many modifications of the present invention will become apparent to those skilled in the art in view of the foregoing description. Accordingly, it is intended that all such modifications, which fall within the true scope of this invention, be included within the scope of the appended claims.

CLAIMS OF THE INVENTION

What is claimed is:

1. A thermoplastic molding composition comprising:
rice hull particulates pretreated sodium peroxide and with an effective amount of resin and plastic material.
2. A thermoplastic molding composition as recited in Claim 1 wherein said rice hull contains residue of sodium peroxide in the amount of 1 to 7 percent by weight;
3. A thermoplastic molding composition as recited in Claim 2 wherein said thermoplastic resin is selected from the group consisting of polyols, polyesters, and phenolics;
4. The thermoplastic molding composition as recited in Claim 2 wherein said thermoplastic resin is present in the amount of about 5 to 7 percent by weight;
5. The thermoplastic molding composition as recited in Claim 1 wherein said thermoplastic material is selected from the group consisting of recycled plastic scrap and waste plastic scrap;
6. The thermoplastic molding composition as recited in Claim 5 wherein said thermoplastic material is selected from the group consisting of polyethylent, polyester, and polypropylene;
7. The thermoplastic molding composition as recited in Claim 6 wherein said thermoplastic material is present in the amount of 20 to 40 percent by weight;
8. The thermoplastic molding composition as recited in Claim 1 including rice hull ash as filler;
9. The thermoplastic molding composition as recited in Claim 8 wherein said rice hull ash is present in an amount of 2 to 5 percent;
10. The thermoplastic molding composition as recited in Claim 1 wherein whole rice hulls are substituted for the rice hull particulates.

11. A thermoplastic molding composition with enhanced strength and improved environmental properties such as water, fire, fungal and termite resistance comprising: rice hull particulates pretreated with an effective amount of sodium peroxide in the amount of 1 to 7 percent by weight; a thermoplastic resin in the amount of about 5 to 7 percent by weight; plastic material in the amount of 20 to 40 percent by weight; and rice hull ash in the amount of 0.5 to 2.5 percent by weight.

12. A method of making a thermoplastic molding composition, comprising the steps of:

- a. grinding rice hulls to a predetermined particle size to form rice hull powder;
- b. admixing said rice hull powder with sodium peroxide;
- c. washing said rice hull powder to remove said sodium peroxide to a predetermined level to provide a pretreated rice hull powder containing sodium peroxide;
- d. drying said pretreated rice hull powder; and
- e. mixing said pretreated rice hull powder with a thermoplastic material to form a homogeneous mixture.

13. The method as recited in Claim 12 wherein said pretreated rice hull particulates contain a residue of sodium peroxide in the amount of about 1 to 7 percent by weight.

14. The method as recited in Claim 12 wherein said thermoplastic resin is selected from the group consisting of polyols, polyesters, and phenolics.

15. The method as recited in Claim 12 wherein said thermoplastic resin is present in said homogeneous mixture in the amount of about 5 to 7 percent by weight

16. The method as recited in Claim 12 wherein said thermoplastic material is selected from the group consisting of polypropylene and polyesters.

17. The method as recited in Claim 16 wherein said thermoplastic material is selected from the group consisting of plastic scrap and recycled plastics.

18. The method as recited in Claim 17 wherein said thermoplastic material is present in said homogeneous mixture in the amount of about 20 to 40 percent by weight.

20. The method as recited in Claim 19 wherein said rice hull ash is present in the amount of about 0.5 to 2.5 percent by weight.

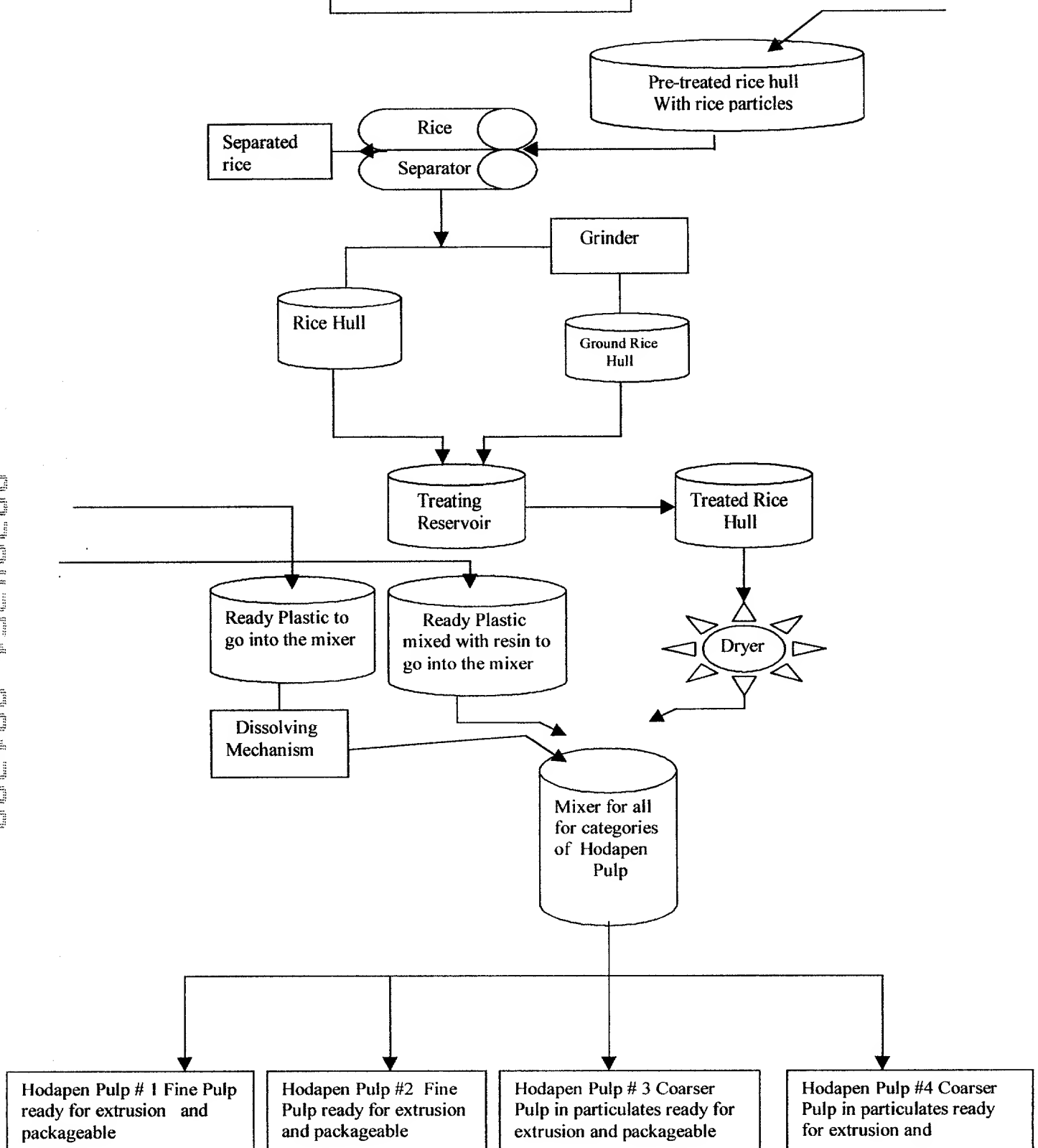
22. The method as recited in Claim 11 wherein whole rice hull is substituted for rice hull powder.

ABSTRACT OF THE DISCLOSURE

Hodapen pulp is a thermoplastic molding composition comprising whole or particulated rice hull pretreated with Sodium Peroxide; a resin binder as a solvent; scrap plastic; and rice hull ash as filler. The composition possesses the molding stability for a deferred use and readiness for immediate extrusion. The pulp is a new product with enhanced strength and improved water, fire, fungal, and termite resistance with superior advantage over similar products. The composition incorporates plastic waste and rice hull as its major components which by themselves contribute to environmental pollution and are treated as a disposable waste.

SCANNED

Figure 1



Docket No.

P-4728

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

PROCESS AND COMPOSITION FOR PRODUCING ARTICLES FROM RICE HULLS

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International

Application Number _____

and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Not Claimed

(Number)

(Country)

(Day/Month/Year Filed)

☐

(Number)

(Country)

(Day/Month/Year Filed)

☐

(Number)

(Country)

(Day/Month/Year Filed)

☐

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

(Application Serial No.)

(Filing Date)

(Application Serial No.)

(Filing Date)

(Application Serial No.)

(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

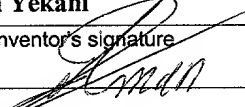
John G. Mills, Retg. No. 20,563

Clifford F. Rey, Reg. No. 37,920

Peter D. Sachtjen, Reg. No. 24,619

Send Correspondence to: **MILLS LAW FIRM PLLC**
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